Maricopa County

Air Quality Department

INTEROFFICE MEMORANDUM

Date: February 17, 2010

To: Air Quality Department Engineering Division Staff

From: Todd Martin, Doug Erwin

Subject: Hot Mix Asphalt (HMA) Plant Compliance Assurance Policy

30. HMA PLANT COMPLIANCE ASSURANCE POLICY

CONTENTS:

30.1 EFFECTIVE DATE:

This policy is effective immediately.

30.2 POLICY OBJECTIVE:

This policy is intended to provide policy guidance to permit engineers regarding performance testing and compliance assurance requirements for hot mix asphalt (HMA) plants.

30.3 DISCUSSION:

As the chief means of demonstrating compliance with air quality requirements, including emissions standards, HMA plants have been required by the department to conduct performance testing on a periodic basis. The department has recognized that performance testing even if it is conducted frequently (i.e., annually) does not necessarily demonstrate continuous compliance. Any source, including HMA plants, must take measures to ensure compliance is demonstrated continuously, which includes measures in addition to performance testing. Below are concerns which must be addressed within any HMA permit to adequately address the issue and ensure compliance demonstration on a continuous basis:

1. Whether the HMA unit is being operated in a manner that is representative of *normal* operations during the period of the performance test.

2. Whether the HMA unit *continues* to be operated in a manner consistent with operations during a successful performance test during periods when testing is not being conducted.

In the case of HMA plants, emissions are strongly affected by tuning and operating conditions, i.e., conditions that can change and therefore cause emissions to differ from those measured during a source test. A single source test performed every five years is not, by itself, sufficient to provide assurance of continuous compliance. More frequent testing and/or additional measures must be taken in order to demonstrate continuous compliance.

30.4 POLICY & PROCEDURES:

In accordance with County Rule 220 §302, a source must provide assurances that the performance test is conducted under representative operating conditions and that these conditions can be tracked on an ongoing basis. Such "representative operating conditions" must ensure continuous compliance with allowable emission limits and requirements and must be enforceable and verifiable.

30.4.1 Representative Source Test and Subsequent Operation – The Permittee must conduct a performance test under representative operating conditions in accordance with County Rule 270, Section 403 and Title 40 CFR Part 60.8(c).

1. The Performance test shall be conducted at 100% of thermodynamic capacity. If operation at 100% of thermodynamic capacity is not feasible, the source shall operate within ±10% of the level permitted as the maximum allowable hourly production rate pursuant to demonstration of compliance with emissions limits. For HMA plants, due to the inherent connection between emissions and production rate, a permit condition limiting the maximum hourly production rate will be established as an enforceable condition. The Permittee shall submit an application for a permit revision if the performance test is conducted at an hourly rate that is lower than the maximum hourly production rate allowed by the permit. Continuous compliance shall be demonstrated, in part, through records of the hourly production rate.

2. The source shall continuously monitor the temperature at the outlet of the drum to measure the asphalt temperature during the performance test. The source shall operate at an asphalt temperature permitted as the maximum asphalt temperature. A permit condition limiting the maximum asphalt temperature will be established as an enforceable condition. The Permittee shall submit an application for a permit revision if the performance test is conducted at a maximum asphalt temperature that is lower than the maximum asphalt temperature allowed by the permit. Continuous compliance shall be demonstrated through the use of temperature monitoring equipment that shall have data logging capability.

30.4.2 Continuous Compliance Assurance with Allowable Emission Limits and Standards – The source bears full responsibility for providing assurances of continuous compliance with allowable emission limits and standards. The applicant will identify a means by which compliance can be determined on a continuous basis and shall submit these means as part of the permit application. These means of compliance demonstration may include, but are not limited to the following:

1. In order to ensure that emissions remain below regulatory threshold, the Permittee shall conduct a performance testing based on the following frequency:

    a. Exhaust from the drum dryer baghouse will be tested for Particulate Matter (PM) and Particulate Matter < 10 microns in diameter (PM10) every 12 months.

b. If a facility accepts an emission limit to avoid an applicable regulatory requirement (such as BACT under Rule 241 or the major source threshold), then the Permittee shall test the drum dryer baghouse exhaust annually for each criteria pollutant for which a limit is taken. Due to their inverse relationship CO and NOX must be tested in unison even if a limit was taken for only one of these pollutants.

c. If the facility wishes to utilize emission factors based on performance test data to increase throughput above what would otherwise trigger an applicable requirement if emissions were calculated using AP-42 emission factors, then annual testing is required for each criteria pollutant for which test data is utilized.

d. For pollutants not subject to annual monitoring, the Permittee shall conduct a performance test every 5 years from the initial test date. Testing shall measure the concentrations of NOX, SOX, CO and VOCs in the drum dryer stack exhaust stream.

Testing shall demonstrate compliance with allowable emission limits and standards. Failure of any test shall be considered a violation of an enforceable requirement and may trigger a revision to the permit.

2. Installation and operation of a "continuous automated combustion control system". This system shall be able to automatically control the dryer combustion process and thus achieve the proposed VOC, NOx and CO emission rates, which shall be demonstrated by a performance test.

3. The source may conduct burner combustion optimization every year or every 200,000 tons of hot mix production, whichever occurs first. The optimization will include the following procedures:

   a. Draft pressure levels at the front of the drum shall be optimized to assure the most efficient burner operation. This shall be measured by means of a pressure gage/controller that controls the damper position. Such damper position shall be kept unchanged at all times during hot mix asphalt production according to the most recent burner optimization/performance test. Daily record of the draft pressure at the front of the drum and damper position shall be kept to ensure compliance.

   b. The combustion optimization shall be based on burner tune-up procedures that result in maximum combustion efficiency and a low NOx operating curve. This curve shall determine the operating range of combustion variables such as CO and O_2 at set points within the following ranges: 20-30% load, 45-55% load, 70-80% load and 95-100% load, for those set points that represent at least 10% of operating hours in a typical year.

   c. A continuous combustion analyzer or portable combustion analyzer shall be used to monitor the operation of the combustion unit in accordance with the combustion efficiency and low NOx operating curve established by this process. The analyzer shall monitor the combustion parameters CO and O_2, or monitor NOx directly. The fuel flow rate shall also be monitored.

   d. The source shall continuously monitor the pressure drop range across the baghouse and record the pressure drop across the baghouse either once per shift or once every eight hours, whichever yields the greater number of readings.

4. The Permittee shall apply Best Available Control Technology (BACT) for each pollutant for which annual testing would otherwise be required under Section 30.4.2.1 of this document.

5. The Permittee shall install and operate a CEMS able to detect one or more of the following pollutants: carbon monoxide, carbon dioxide, nitrogen oxides sulfur dioxide and total hydrocarbons. The CEMS shall have data logging capability to insure continuous compliance.

6. Other method(s) as proposed by the source and approved by the department.

30.5 RELEVANT RULES

- Rule 100 §502: When requested by the Control Officer, a person shall furnish to the department information to locate and classify air contaminant sources according to type, level, duration, frequency, and other characteristics of emissions and such other information as may be necessary. This information shall be sufficient to evaluate the effect on air quality and compliance with these rules.
- Rule 220 §302 – PERMIT CONTENT, most notably §§302.2 and 302.5.
- Rule 270 §102: AUTHORITY TO REQUIRE TESTING: Nothing in this rule shall be construed to abrogate the Control Officer's authority to require testing.
- Rule 270 §103: SUPPORTIVE DATA FOR GOOD MAINTENANCE AND OPERATING PRACTICES: Nothing in this rule shall be so construed as to prevent the utilization of measurements from emissions monitoring devices or techniques not designated as performance tests as evidence of compliance with applicable good maintenance and operating requirements.
- Rule 270 §407: COMPLIANCE WITH THE EMISSION LIMITS: Except as provided in Section 408 of this rule, compliance with the emission limits established in this rule or as prescribed in permits issued pursuant to this rule shall be determined by the performance tests specified in this rule or in the permit.
- Rule 270 §408: ADDITIONAL TESTING: In addition to performance tests specified in this rule, compliance with specific emission limits may be determined by:
  - 408.1: Opacity tests.
  - 408.2: Emission limit compliance tests specifically designated as such in the rule establishing the emission limit to be complied with.
  - 408.3: Continuous emission monitoring, where applicable quality assurance procedures are followed and where it is designated in the permit or in an applicable requirement to show compliance.
  - 408.4: Nothing in this rule shall be so construed as to prevent the utilization of measurements from emissions monitoring devices or techniques not designated as performance tests as evidence of compliance with applicable good maintenance and operating requirements.3
- Rule 200 §310: PERMIT CONDITIONS: The Control Officer may impose any permit conditions that are necessary to ensure compliance with federal laws, Arizona laws, or these rules.
  - 310.1: The Control Officer may require, as specified in Section 310.2 and Section 310.3 of this rule, any source of regulated air pollutants to monitor, sample, or perform other studies to quantify emissions of regulated air pollutants or levels of air pollution that may reasonably be attributable to that source, if the Control Officer:
    - 310.1.a: Determines that monitoring, sampling, or other studies are necessary to determine the effects of the source on levels of air pollution; or

- 310.1.b: Has reasonable cause to believe a violation of this rule, rules adopted pursuant to this rule, or a permit issued pursuant to this rule has been committed; or
- 310.1.c: Determines that those studies or data are necessary to accomplish the purposes of this rule and that the monitoring, sampling, or other studies by the source are necessary in order to assess the impact of the source on the emission of regulated air contaminants.

30.6 BACKGROUND INFORMATION

- Air Quality General Permit to Construct/Operate Hot Mix Asphalt Facilities (For Minor Facilities), Oklahoma Department of Environmental Quality, http://www.deq.state.ok.us/aqdnew/permitting/general/asphalt%30permit-final%30issuance.pdf
- Air Pollution Control General Construction Permit Hot Mix Asphalt Facilities, Wisconsin Department of Natural Resources, Contact: Joe Brehm Joseph.Brehm@Wisconsin.gov
- Technical Review and Evaluation of the Hot Mix Asphalt Plant General Permit, Arizona Department of Environmental Quality, http://www.azdeq.gov/environ/air/permits/download/gnhmaptsd.pdf
- Air Quality Tier II Operating Permit and Permit to Construct Number: P060113, Idaho Department of Environmental Quality, http://www.deq.idaho.gov/air/permits_forms/t2_ptc_final/interstate_concrete_sandpoint_t2-ptc_0606-2_permit.pdf
- Air Quality Permit #4306-00, Montana Department of Environmental Quality, http://www.deq.state.mt.us/AirQuality/ARM_Permits/4306-00_Final.pdf
- Kern County Air Pollution Control District, Rule 425.1.V.A: http://www.arb.ca.gov/DRDB/KER/CURHTML/R425-1.HTM "No person shall operate a hot mix asphalt paving plant unless the exhaust stack is equipped with a continuously recording stack gas oxygen monitor, or provisions are made to periodically (at least monthly) analyze and record exhaust gas oxygen content."
- Air Quality Standard Permit for Hot Mix Asphalt Plants, Texas Natural Resource Conservation Commission, http://www.tceq.state.tx.us/assets/public/permitting/air/NewSourceReview/Mechanical/asphalt703.pdf
- Bay Area Air Quality Management District, Contact Dharam Singh (Permit Engineer II).